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ABSTRACT

An analysis was conducted on the employment history of teachers hired in the North Carolina public schools from 1979-80 school year through 1996. Over 81,000 new teachers were hired in this period. Overall, the loss by the end of the second teaching year is 15-18 percent. Male teachers are more likely to leave (20 percent versus 15 percent for females). High school teachers leave at a higher rate with 35 percent gone after 5 years versus 28 percent of elementary school teachers. The National Teacher Examination (NTE) test scores of teachers leaving are higher than those staying. Teachers from the bottom quartile of colleges are much more likely to stay than those from the top quartile (26 percent from lowest quartile leaving versus 44 percent from the top quartile). The differences in the average test scores of the leavers and the stayers may be a matter of concern if the NTE test scores are a significant determinant of teacher performance. The average score differences of leavers and stayers may indicate a failure to retain better qualified teachers in the system. The appendix provides 24 attrition matrices. (JLS)

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Teacher Attrition

M. Engin Konanc

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Statistical Notes No: 002

TEACHER ATTRITION

1980-1996

M. Engin Konanc

Statistical Research and Data Center/Financial and Personnel Services
North Carolina Department of Public Instruction
May, 1996

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TEACHER ATTRITION 1980-1996

EXECUTIVE SUMMARY

- According to Teacher Certification File records, since the 1979-80 school year over 81,000 new teachers were hired in the N.C. public school system.

- Average NTE test scores of the new teachers hired show an increasing trend. This is true for both the *Professional Knowledge* test scores and the *Subject Area* test scores.

- The colleges that produce new teachers were divided into four groups or quartiles based on the average test score of their students who either have been or still are employed in the Public Schools. Over the years (1980-96), there has been an increase in the percentage of teachers coming from colleges in the third and fourth quartiles, with a corresponding decrease in the second quartile. The share of the first or bottom quartile remained stable at about 21 percent.

- By the end of the fifth year, a third of the teachers are leaving teaching activities.

- The loss by the end of the second year is around 15 to 18 percent for all teachers, except foreign language teachers (22 percent). The patterns of attrition over the years are similar for all subject areas investigated.

- Male teachers are much more likely to leave teaching than female teachers. By the end of the second year, 20 percent of male teachers are leaving teaching. In contrast, the loss of female teachers for the same period is 15 percent.

- High school teachers are leaving at a higher rate than the middle and elementary school teachers. At the end of five years, nearly 35 percent of the high school teachers and only 28 percent of the elementary teachers are gone.

- In general, NTE test scores of the teachers who leave are higher than those who stay. This is true for both the *Professional Knowledge* and the *Subject Area* test scores. The differences are statistically significant at the 0.05 level for English, math, science, and exceptional children teachers.

- The teachers coming from the bottom quartile of the colleges are much more likely to stay on than those coming from the top quartile of colleges. Only 26 percent of the lowest quartile teachers are leaving as opposed to 44 percent of those from the top quartile.

- The differences in the attrition patterns of teachers coming from the four quartiles of colleges change the composition of the remaining teaching force. Teachers from the top or upper two quartiles are leaving at a faster rate than those from the bottom two quartiles. Initially 37 percent of the teachers hired are coming from the top two quartiles of the colleges. But, of the teachers who remain in teaching, the fraction falls to 33 percent.

Introduction

This *Statistical Brief* presents some results of the analysis conducted on the employment history of teachers hired in the North Carolina Public schools since 1989-90 school year to present. The analysis was directed to answer the following questions: How many teachers were hired in each of the years under study? What was their average NTE test scores –required for certification– of each group hired? Which colleges produced these teachers, and what were the average test scores of graduates of each institution? How long did the teachers remain in teaching? How many left and when –attrition rates–? Were there differences in attrition patterns of different teacher groups? And finally, were there any significant differences in the test scores of those who left and those who stayed ?

The data for the analysis was extracted from the certification and payroll records in the Department's files. The only teachers included in the study were those who were hired in the Public Schools, as opposed to all teachers who were certified. Teachers who took non-teaching positions, even if they stayed in the school system, are regarded as having left classroom teaching.

One point that needs to be emphasized from the outset is this: People change occupations for many reasons. Even though it is not easy to determine and document, it is clear that there is some natural attrition rate in every profession. Information about the natural attrition rates is not available for two reasons. First, few professions are well defined in terms of what their individual members do. For example, the variety of jobs performed and employment areas for lawyers are much broader and far less uniform than they are for teachers. Second, there are no centralized employment records for other professions to assess their attrition rates.

Absence of such knowledge makes the results of the study, especially in terms of attrition rates, difficult to put in proper perspective. When we say a third of the teachers leave by the end of their fifth year, we do not know whether this is true or not for other professions, if this is a problem that needs to be addressed as a policy issue, or if we are observing a natural phenomenon that is common to other professions.

In certain parts of the analysis, NTE test scores are used either for classifications or comparisons. There are several types of tests that are administered by the NTS and taken by teachers as a part of the certification requirements. In the last two years, the new teachers are taking a new series of tests called "The PRAXIS Series," developed to replace the "old" tests. Since only the teachers hired in the last year took the new series, the analysis is confined to the "old" tests.

Specifically only two types of the "old tests" are used: The Professional Knowledge (PK) part of the old series designed to test the pedagogy knowledge of teacher candidates and is taken by all certified teachers. The other set of test scores used in the analysis are those of the "Subject Area " tests. There is a different test for each subject that the teacher seeks certification in.

The reader may note that the totals in different parts of the analysis may not be congruous. This is the result of incomplete records. For instance, if a teacher's record has a missing test score, that teacher is not included in the analysis requiring test scores, but would be included in other counts.

New Hires

YEAR HIRED	*NUMBER HIRED*
1980	6,417
1981	4,071
1982	2,852
1983	2,805
1984	3,401
1985	3,950
1986	4,377
1987	4,661
1988	4,972
1989	5,494
1990	5,026
1991	4,306
1992	4,563
1993	5,494
1994	5,995
1995	6,377

Table 1

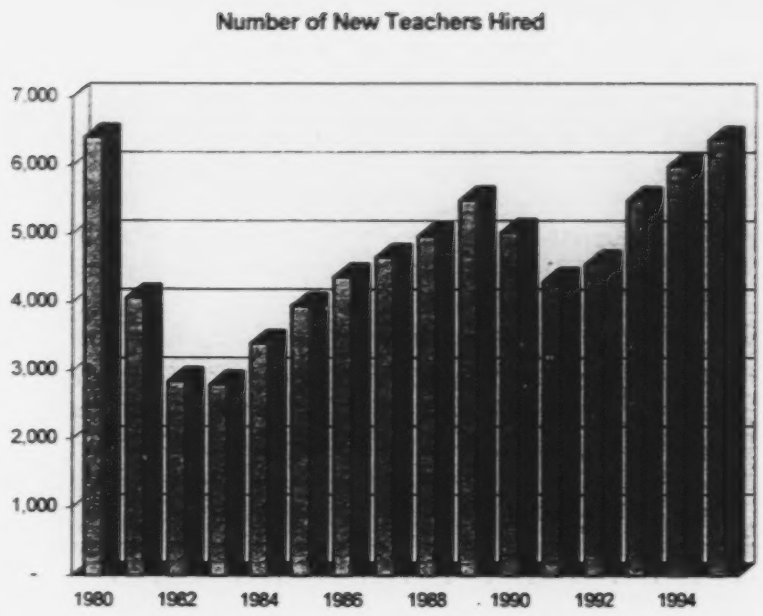


Figure 1

The numbers of new teachers hired since 1980 are shown in Table 1 and Figure 1. The number of new hires in a given year is the result of several factors. First, the change in the total number of students in the school system has a major impact on the number of teachers. The number of students has declined from 1980 to 1990 and has been going up since then. The second major factor is the introduction of new programs. The impact of the BEP from 1985 to 90 is evident. In fact, it is strong enough to reverse the downward pressure of declining enrollment over that period. The explicit attempt to reduce class size is another important factor that pushes up the number of classroom teachers and therefore the new teachers hired. A factor that depresses the number of new teachers hired is substantial increases in the teacher salaries. Other things being equal, a meaningful increase in the pay slows down the rate of retirements, and thus, reduces the number of new hires.

Trends of NTE Professional Knowledge Test scores

YEAR HIRED	AVG. PK. TEST SCORE
1980	602.40
1981	601.78
1982	606.43
1983	606.51
1984	606.27
1985	608.67
1986	611.87
1987	611.49
1988	628.78
1989	628.33
1990	621.91
1991	620.41
1992	627.67
1993	628.02
1994	635.71
1995	640.69

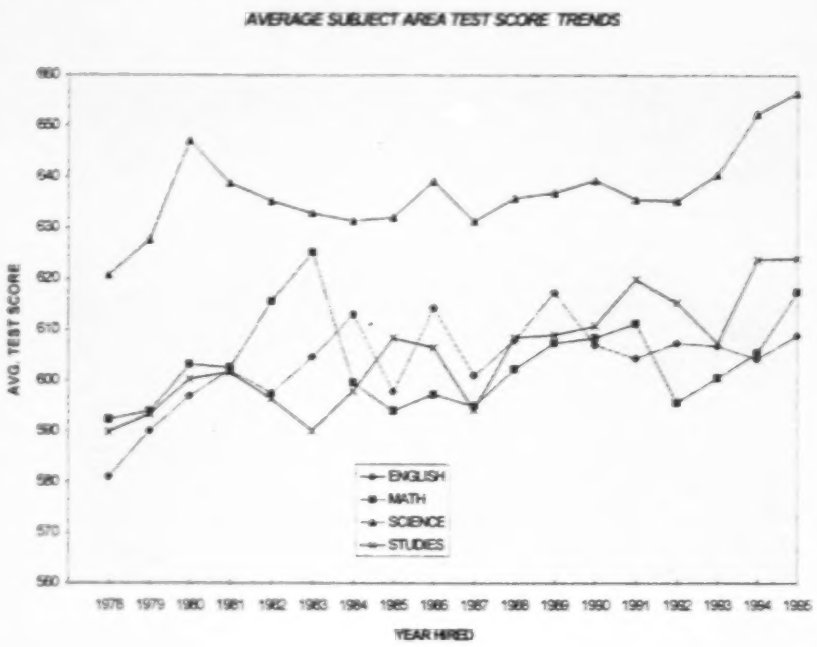
Table 2

Figure 2

As the numbers of newly hired teachers increase over the 15 year time period under study, has there been a change in the average test scores of the teachers hired in each year? Table 2 and Figure 2 show the trend of average annual test scores of the new teachers hired. The only test scores that can be aggregated over teachers in different certification areas are the Professional Knowledge test scores. The data shows a clear upward trend over the years.

Trends in Subject Area Test Scores

The pattern of subject area test scores over the years included in the analysis is similar to the trend in Professional Knowledge test scores. The average test scores of teachers hired each year in selected subject areas are shown in Table 3 and plotted in Figure 3. A slight upward trend is evident in the four subjects plotted, and again reflects the impact of increased minimum score requirements for licensure.



YEAR HIRED	ENGLISH	FOREIGN LANGUAGE	EXCEPT. CHILDREN	MATH	MUSIC ART DANCE	SCIENCE	SOCIAL STUDIES
1978	581.1	594.4	633.2	592.4	598.4	620.8	589.9
1979	590.1	603.1	640.4	594.0	603.5	627.8	593.4
1980	597.0	577.8	637.3	603.3	614.0	647.2	600.3
1981	602.0	607.2	640.1	602.6	602.1	638.9	601.7
1982	597.6	616.7	638.9	615.7	609.9	635.4	596.5
1983	604.8	614.8	628.7	625.3	614.5	633.0	590.2
1984	613.2	616.7	621.1	599.7	604.7	631.5	598.0
1985	597.9	614.2	633.0	594.1	608.2	632.1	608.5
1986	614.4	638.2	641.3	597.4	607.1	639.3	606.6
1987	601.1	637.5	638.9	595.0	611.1	631.4	594.3
1988	608.1	598.6	642.5	602.3	615.6	635.9	608.6
1989	617.4	609.1	645.3	607.5	613.2	637.0	609.1
1990	607.2	622.8	655.5	608.5	616.2	639.4	610.9
1991	604.5	615.5	655.7	611.3	612.6	635.6	619.9
1992	607.5	603.7	658.7	595.7	619.8	635.4	615.4
1993	606.9	610.3	658.9	600.5	616.6	640.5	607.4
1994	604.3	617.5	666.9	605.5	632.7	652.4	623.9
1995	609.0	630.4	664.2	617.5	632.3	656.4	624.0

Table 3

Institutional sources of new teachers

There are many institutions of higher education in and out of state that train teachers. Academic standards and prestige of these institutions vary. A natural question that arises is this: "If teacher colleges can be classified into groups according to the test scores of their alumni, is there a shift in the composition of new teachers from low to high test score institution groups over the years?" To answer this question, the average Professional Knowledge (PK) test scores of alumni of each institution were computed. Next, the institutions were sorted according to the average alumni test scores –from low to high– and then they were categorized into four quartiles according to their average alumni PK test scores. The institutions that provided less than fifty new teachers over the study period were not included in this procedure.

The numbers and percent of new teachers coming from each category of schools over the years are shown in Table 4. The table shows only those teachers coming from institutions that supplied 50 or more teachers. The bottom numbers in each cell of the table show the percent of teachers in each quartile that were hired in that year. It is clear from the data that the percentage of teachers coming from the bottom half of the colleges has declined, while the top half has increased. For instance, in 1980 two thirds (66 percent) of the teachers came from colleges which were in the first and second quartiles. In 1995 only 60 percent of the new teachers came from the two bottom quartiles.

There is a decline in the contribution of the second quartile colleges to the total. Their "market share" is being taken over by the schools in the third and fourth quartiles. The fraction of teachers in the total coming from the bottom quartile of colleges has not changed very much.

This movement from the second quartile to the third and fourth quartiles explains part of the upward drift in the annual average PK test scores observed in the prior section.

Institutional sources of new teachers

Frequency / Row Pct	QUARTILE OF COLLEGES 1	2	3	4	Total Hired
1980	1061 20.42	2418 46.54	1116 21.48	601 11.57	5196
1981	724 22.06	1480 45.09	709 21.60	369 11.24	3282
1982	453 20.15	1064 47.33	438 19.48	293 13.03	2248
1983	457 20.83	985 44.90	458 20.88	294 13.40	2194
1984	591 21.85	1221 45.14	552 20.41	341 12.61	2705
1985	657 21.73	1305 43.15	657 21.73	405 13.39	3024
1986	723 21.97	1405 42.69	705 21.42	458 13.92	3291
1987	872 24.09	1536 42.43	829 22.90	383 10.58	3620
1988	811 21.79	1598 42.93	854 22.94	459 12.33	3722
1989	886 22.51	1660 42.17	866 22.00	524 13.31	3936
1990	732 20.63	1447 40.77	836 23.56	534 15.05	3549
1991	630 20.26	1332 42.84	731 23.51	416 13.38	3109
1992	687 20.51	1378 41.13	861 25.70	424 12.66	3350
1993	836 21.01	1602 40.26	1022 25.68	519 13.04	3979
1994	930 21.64	1696 39.47	1092 25.41	579 13.47	4297
1995	998 22.32	1733 38.76	1121 25.07	619 13.84	4471
1996	805 21.01	1523 39.75	962 25.11	541 14.12	3831
Total	12853	25383	13809	7759	59804

Table 4

Attrition rates

Attrition rates of the newly hired teachers of each school year are combined by means of an attrition matrix. An example of the attrition matrix for *all teachers* is given in Figure 5. The "Stub" shows the years in which the new teachers were hired. The rows of the matrix show the number of teachers surviving at the end of the year (shown in the column heading) from the group of teachers hired during the year shown in the "Stub." For instance, in the 1979-80 school year 6,407 new teachers were hired. Of this number, 5,568 remained at the end of the 1980-81 school year, and only 3,067 at the end of the 1993-94 school year.

The entries in the main diagonal show the number of teachers hired each year. The sum of the main diagonal entries shown at the bottom cell of the "C1" column is the total number of new teachers hired between the 1979-80 and the 1995-96 school years. The sum of the first diagonal entries above the main diagonal is the total number of teachers who survived their second year (62,525). The other entries in "C1," from the bottom to the top, show the total survivors at the end of the corresponding year in "C2." The partial diagonal sums –in column "C3"– show the number of teachers that had a chance to survive a certain number of years. For instance only those who came in 1979-80 school year had a chance to survive 17 years. In fact the entries in the column labeled "C3" are the consecutive cumulative sums of the main diagonal entries starting from the top left of the matrix. For instance, the entry in the third row of this column (13,340) shows the total number of teachers who had a chance of being in the system for 15 years – those who were hired in years 1980-82. The figure (13,340) is the sum of main diagonal entries in the first through the third rows.

The ratio of the entries in column "C1" to the corresponding entries in column "C3" shows the percent surviving by the end of the years shown in column "C2". These are the ***survival rates*** by years. The ***attrition rates*** are the complement of the survival rates to 100 percent.

The important point to observe is that the rates computed are not from one or two cohort groups, but from a combination of all feasible cohorts. Therefore they are very reliable for the first ten or so years because they are based on the experience of more than 32,000 teachers that were hired over a decade. The survival rates in each of the 17 years are plotted in the diagram below the attrition matrix.

Attrition matrices for a number of subgroups of teachers were computed to determine if there were any differences in the attrition patterns of different groups. The classification for the groups was based on the gender of the teachers, the level of school they teach in (elementary, middle, and high school), and the subject matters the teachers were certified in. The matrices and the attrition diagrams of each group are included in the Appendix.

The general patterns of attrition are very similar for the different subject areas that were analyzed: 83 to 85 percent of the teachers survive through their second year. The only exception is the attrition pattern for foreign language teachers where the loss is almost 22 percent. The attrition rates by the end of 17 years are between 60 to 66 percent.

Prepared by STAT. RESEARCH AND DATA CTR.

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	6,417	5,568	5,121	4,842	4,636	4,423	4,259	4,032	3,886	3,736	3,602	3,483	3,357	3,227	3,067	2,894	2,616	2,616	17	6,417	40.77
1981	0	4,071	3,451	3,215	3,005	2,845	2,728	2,585	2,482	2,390	2,290	2,212	2,125	2,040	1,927	1,832	1,657	4,551	16	10,488	43.39
1982	0	0	2,852	2,460	2,280	2,126	2,005	1,878	1,809	1,736	1,658	1,591	1,520	1,464	1,395	1,310	1,177	6,076	15	13,340	45.55
1983	0	0	0	2,805	2,423	2,222	2,065	1,923	1,833	1,754	1,685	1,623	1,562	1,485	1,403	1,316	1,191	7,655	14	16,145	47.41
1984	0	0	0	0	3,401	3,002	2,789	2,595	2,477	2,326	2,223	2,115	2,031	1,930	1,843	1,731	1,550	9,658	13	19,546	49.41
1985	0	0	0	0	0	3,950	3,454	3,147	2,965	2,812	2,661	2,528	2,440	2,311	2,189	2,072	1,865	12,071	12	23,496	51.37
1986	0	0	0	0	0	0	4,377	3,677	3,383	3,108	2,913	2,765	2,641	2,506	2,353	2,202	1,963	14,697	11	27,873	52.73
1987	0	0	0	0	0	0	0	4,661	4,085	3,741	3,495	3,282	3,111	2,924	2,716	2,476	2,228	17,728	10	32,534	54.49
1988	0	0	0	0	0	0	0	0	4,972	4,247	3,889	3,614	3,414	3,186	2,963	2,738	2,439	21,167	9	37,506	56.44
1989	0	0	0	0	0	0	0	0	0	5,494	4,621	4,176	3,878	3,587	3,344	3,079	2,718	25,168	8	43,000	58.53
1990	0	0	0	0	0	0	0	0	0	0	5,026	4,217	3,854	3,497	3,207	2,956	2,575	29,340	7	48,026	61.09
1991	0	0	0	0	0	0	0	0	0	0	0	4,306	3,612	3,272	2,970	2,687	2,354	33,565	6	52,332	64.14
1992	0	0	0	0	0	0	0	0	0	0	0	0	4,563	3,808	3,383	3,028	2,623	38,411	5	56,895	67.51
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	5,494	4,490	3,909	3,240	44,428	4	62,389	71.21
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,995	4,751	3,805	52,186	3	68,384	76.31
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,377	4,659	62,525	2	74,761	83.63
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,436	81,197	1	81,197	100.00

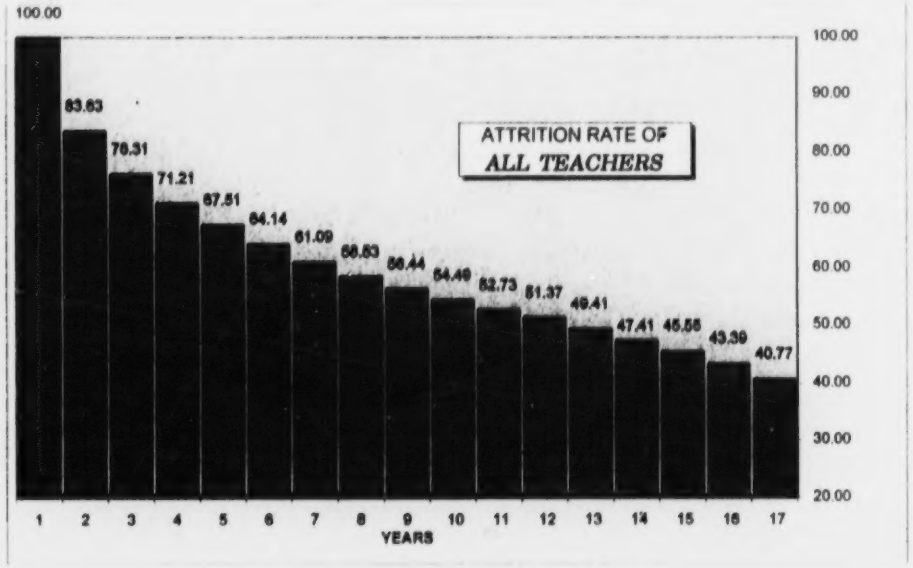


Figure 5

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The patterns of attrition for different groups of teachers for some selected number of years are shown in Table 5 .

PERCENT RETAINED BY SELECTED TEACHER GROUPS

TEACHER GROUPING	*Percent retained at the end of*			
	2nd Year	*5th year*	*10th year*	*15th year*
All teachers	83.63	67.51	54.49	45.55
Female teachers	84.67	68.90	56.80	48.18
Male teachers	79.96	62.25	46.31	35.07
Elementary teachers	86.94	72.31	59.78	51.31
Middle School teachers	86.11	71.79	58.35	49.25
High School teachers	82.21	65.49	52.49	43.80
English teachers	83.66	68.06	55.42	46.34
Exceptional Children teachers	85.61	69.63	57.91	46.48
Foreign Language teachers	78.75	62.11	51.64	42.75
Mathematics teachers	83.48	68.38	55.55	50.15
Music, Art, Dance teachers	83.78	64.50	54.42	45.30
Science teachers	83.28	67.73	54.89	48.29
Social Studies teachers	84.29	69.72	56.56	48.35

Table 5

Male teachers show greater attrition rates than female teachers for all the selected years. In fact, at the end of 15 years, nearly 65 percent of the male teachers have left in contrast to 52 percent of the female teachers.

The second point to observe is that the attrition rate among high school teachers is higher than the attrition rate of middle and the elementary school teachers. While slightly over 51 percent of the elementary teachers survive their 15th year, only 44 percent of the high school teachers do so. The difference between the attrition rates of elementary and middle school teachers is quite small.

Teachers certified in different subjects show a remarkable similarity in their attrition patterns. The only exception is the foreign language teachers who have higher attrition rates than the other groups. The observed differences among the groups are greater after the 5th year. However, one should remember that the number of cohorts involved in obtaining 15 year experience is much smaller than that of 5 years. In other words, the number of teachers involved in the computation of attrition rates beyond 10 years gets smaller and therefore the rates may be far less stable.

Differences Between Those Who Leave and Those Who Stay

In the preceding sections we showed that by the end of the 5th year about a third of the teachers leave teaching. Are there any differences in the NTE test scores of those who leave and those who stay? In this section the results of the analysis that answer this question will be discussed.

The averages of both NTE Professional Knowledge and Subject Area test scores were computed for those who left and those who stayed past the 5th year of their employment. The differences in the averages of *leavers* and *stayers* were tested for statistical significance. The details of statistical tests for each group of teachers are available at the Statistical Research and Data Center. The results of the statistical tests are summarized in Table 6.

DIFFERENCES IN THE AVERAGE TEST SCORES OF THOSE WHO LEFT AFTER THEIR FIFTH YEAR AND THOSE WHO REMAINED

TEACHERS CERTIFIED IN	SUBJECT AREA TEST			PROFESSIONAL KNOWLEDGE TEST		
	MEAN SCORE OF THOSE THAT		DIFFERENCE STATISTICAL	MEAN SCORE OF THOSE THAT		DIFFERENCE STATISTICAL
	LEFT	STAYED	SIGNIFICANT?	LEFT	STAYED	SIGNIFICANT?
ENGLISH	618.19	605.51	YES	664.39	663.25	YES
EXCEPTIONAL CHILDREN	654.38	648.81	NO	662.40	660.84	YES
FOREIGN LANGUAGE	617.47	622.63	NO	662.86	662.79	NO
MATHEMATICS	623.37	594.82	YES	663.93	661.17	YES
MUSIC, ART, DANCE	618.92	614.08	NO	660.06	659.11	NO
SCIENCE	645.33	632.36	YES	664.49	662.19	YES
SOCIAL STUDIES	620.72	611.76	YES	663.25	662.56	NO

Table 6

With the exception of foreign language teachers, in all categories of subject areas those who left have higher test scores than those who stayed on. However the differences are not statistically significant at 0.05 level for all groups. In terms of PK test scores, difference for every group is statistically significant, except for the teachers certified in exceptional children, foreign language and music, art and dance. The reversal of the difference pattern for the foreign language teachers may be explained by the fact that some of these teachers are native speakers who received education degrees. The differences in the subject area test scores are similar to those of the PK scores except for social studies.

To the extent that the test scores measure academic credentials of the new teachers, the "better qualified" teachers seem to leave first, at least in English, science, and mathematics.

The next question is : Are there differences between *leavers* and *stayers* in terms of the colleges that produced these teachers? To answer this question the classification of colleges into quartiles by the method described in an earlier section is employed, and the leavers and stayers at the end of 5 years of employment are grouped into these four quartiles. The results are shown in Table 7.

LEAVERS AND STAYERS BY COLLEGE TYPE

	QUARTILE OF COLLEGES				
	FIRST	*SECOND*	*THIRD*	*TOP*	
GONE	532 0.18 0.26	1,129 0.39 0.30	745 0.25 0.35	516 0.18 0.44	2,922 0.32
HERE	1,489 0.24 0.74	2,640 0.43 0.70	1,402 0.23 0.65	670 0.11 0.56	6,201 0.68
TOTAL HIRED *PCT. HIRED*	2,021 0.22	3,769 0.41	2,147 0.24	1,186 0.13	9,123

Figure 7

There are three entries in each cell in the main body of the table. In each cell, from top to bottom, the first number is the number of teachers that fell into that classification. The second number is the percent of the teachers in the row group that fell into that cell. And finally, the last entry in the cell is the percent of teachers that fell into the quartile shown in the column heading. For instance, 745 teachers who left within 5 years came from the third quartile of the colleges; 25 percent of those who left were from the third quartile colleges; and finally, 35 percent of all those who graduated from the third quartile of the colleges left the system by the end of their fifth year.

The row and column margin cells are to be interpreted as follows: Entries in the bottom row cells are the total number of teachers that came from each quartile of colleges whether they left or stayed. The bottom numbers in these cells show the percent of teachers that came from each quartile. The far right column shows the number and percent of those who stayed or left ignoring the college classification.

What do the numbers tell us? First, the majority of the teachers, about 63 percent, are coming from the bottom two quartiles of the colleges. Second, 43 percent of the leavers are from the top half of the colleges even though the percent of teachers that come from that group is 37 percent of all teachers. So, a greater proportion of the teachers from the top half of the colleges are leaving. Third, while only 56 percent of the teachers that came from the top quartile of colleges remain in the system, 74 percent of those who came from the bottom quartile remain in the system. That is to say, those who came from the top quartile of colleges are less likely to stay in the system than those who came from the bottom half of the colleges.

Conclusion

The analysis revealed some positive trends and some trends that are hard to gauge. Increasing average NTE test scores is clearly a positive trend. Another positive trend is the increase in the number of teachers coming from the top two quartiles of colleges. In recent years, there is a clear evidence that, in the total, the share of teachers coming from the top two quartiles of colleges has increased.

The absence of attrition information for other professions makes it difficult to assess the observed teacher attrition patterns. Is fifteen percent loss at the end of the second year of employment unusual enough to require attention, or is it something natural that happens in all professions? We were unable to answer these questions.

The differences in the average test scores of the *leavers* and *stayers* may be a matter of concern if the NTE test scores are a significant determinant of teacher performance. The average score differences of the *leavers* and *stayers* in the core subject areas may indicate that we are failing to retain better qualified teachers in the system.

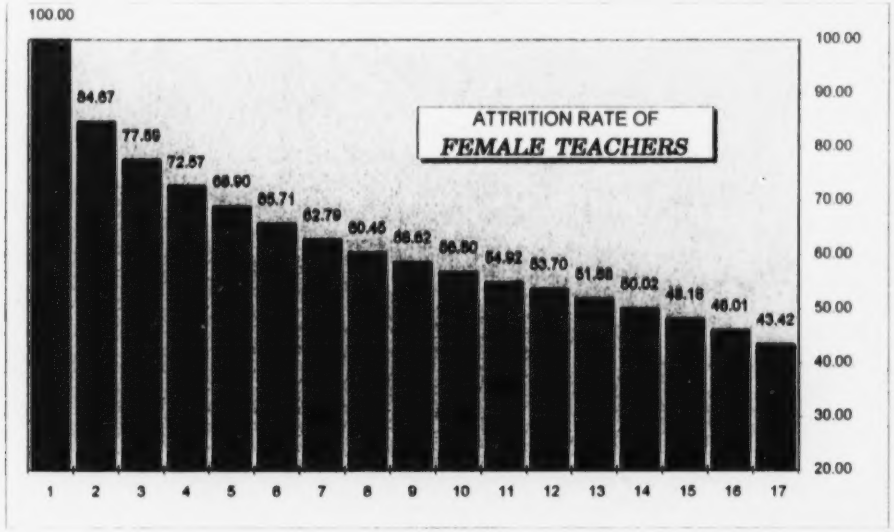
APPENDIX

ATTRITION MATRICES

Prepared by STAT. RESEARCH AND DATA CTR.

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	5,175	4,531	4,181	3,965	3,799	3,649	3,520	3,353	3,241	3,118	3,011	2,923	2,819	2,725	2,602	2,472	2,247	2,247	17	5,175	43.42
1981	0	3,252	2,774	2,598	2,434	2,317	2,228	2,124	2,044	1,980	1,910	1,846	1,778	1,712	1,622	1,551	1,405	3,877	16	8,427	46.01
1982	0	0	2,230	1,944	1,810	1,701	1,611	1,515	1,470	1,416	1,359	1,311	1,255	1,215	1,161	1,090	982	5,135	15	10,657	48.18
1983	0	0	0	2,185	1,897	1,755	1,643	1,537	1,468	1,410	1,362	1,310	1,270	1,219	1,154	1,086	987	6,424	14	12,842	50.02
1984	0	0	0	0	2,674	2,379	2,209	2,067	1,976	1,860	1,785	1,708	1,643	1,566	1,498	1,413	1,272	8,050	13	15,516	51.88
1985	0	0	0	0	0	3,129	2,757	2,516	2,389	2,270	2,148	2,055	1,985	1,885	1,781	1,690	1,529	10,012	12	18,645	53.70
1986	0	0	0	0	0	0	3,419	2,883	2,666	2,459	2,308	2,202	2,108	2,013	1,888	1,776	1,599	12,118	11	22,064	54.92
1987	0	0	0	0	0	0	0	3,454	3,057	2,826	2,657	2,503	2,391	2,255	2,115	1,954	1,763	14,495	10	25,518	56.80
1988	0	0	0	0	0	0	0	0	3,924	3,415	3,135	2,931	2,768	2,592	2,410	2,232	2,000	17,260	9	29,442	58.62
1989	0	0	0	0	0	0	0	0	0	4,361	3,705	3,351	3,127	2,894	2,705	2,490	2,206	20,434	8	33,803	60.45
1990	0	0	0	0	0	0	0	0	0	0	4,010	3,394	3,116	2,839	2,606	2,416	2,116	23,743	7	37,813	62.79
1991	0	0	0	0	0	0	0	0	0	0	0	3,458	2,937	2,671	2,431	2,213	1,945	27,119	6	41,271	65.71
1992	0	0	0	0	0	0	0	0	0	0	0	0	3,706	3,139	2,820	2,532	2,187	30,989	5	44,977	68.90
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	4,380	3,640	3,189	2,644	35,819	4	49,357	72.57
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,660	3,773	3,068	41,911	3	54,017	77.59
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,953	3,703	49,928	2	58,970	84.67
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,651	63,621	1	63,621	100.00



FEMALE TEACHERS

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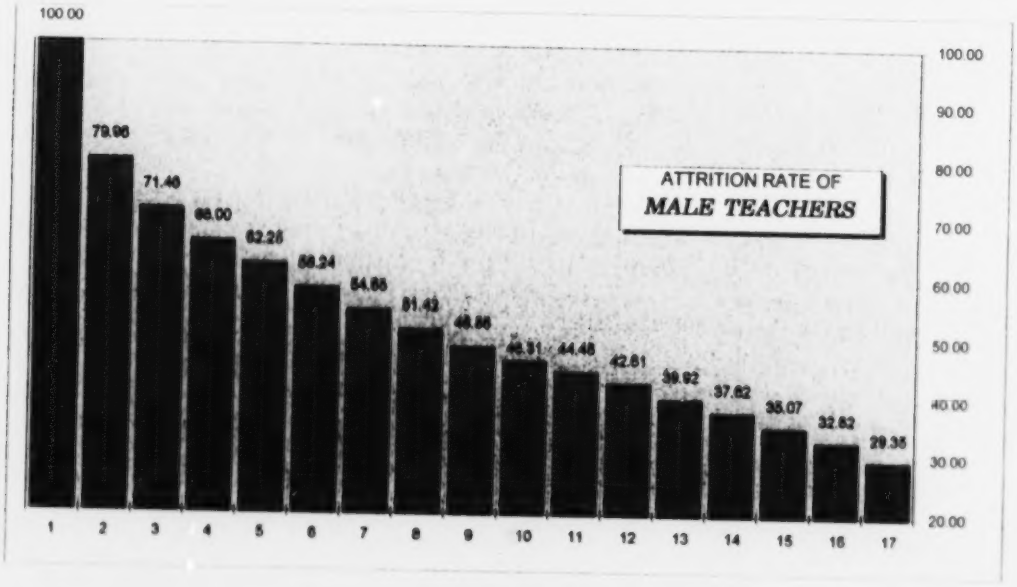
Prepared by STAT RESEARCH AND DATA CTR

TEACHER ATTRITION STUDY

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	1,138	955	864	804	769	709	677	624	593	568	543	514	492	458	424	382	334	334	17	1,138	29.35
1981		738	613	557	518	477	452	417	395	369	344	330	314	297	277	254	230	612	16	1,876	32.62
1982			548	457	413	374	347	318	295	278	264	249	237	221	209	196	172	850	15	2,424	35.07
1983				556	475	424	385	354	333	315	294	284	268	243	228	212	190	1,121	14	2,980	37.62
1984					642	555	517	469	444	413	385	358	340	317	300	275	236	1,446	13	3,622	39.92
1985						741	630	571	523	491	464	428	413	387	371	347	307	1,859	12	4,363	42.61
1986							891	736	662	601	559	519	492	456	430	396	337	2,337	11	5,254	44.48
1987								1,088	919	813	744	691	639	592	533	474	424	2,937	10	6,342	46.31
1988									972	769	698	632	600	552	513	473	411	3,552	9	7,314	48.56
1989										1,054	852	768	700	644	599	551	479	4,303	8	8,368	51.42
1990											968	782	701	626	573	514	437	5,102	7	9,336	54.65
1991												781	623	555	498	439	380	5,892	6	10,117	58.24
1992													792	618	517	460	403	6,791	5	10,909	62.25
1993														1,045	796	675	556	7,890	4	11,954	66.00
1994															1,231	916	687	9,422	3	13,185	71.46
1995																1,286	875	11,571	2	14,471	79.96
1996																	1,152	15,623	1	15,623	100.00

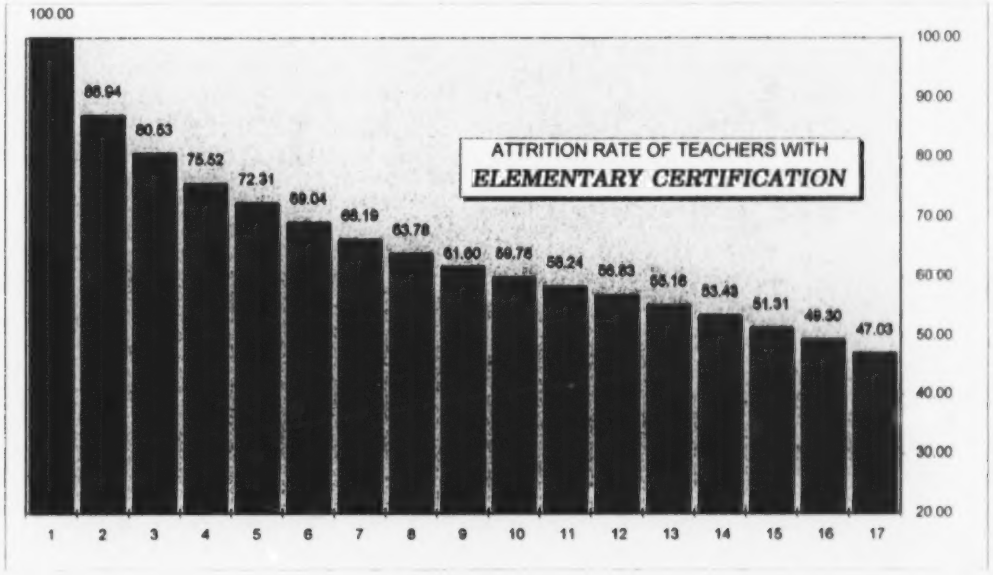


MALE TEACHERS

Prepared by STAT. RESEARCH AND DATA CTR

TEACHER ATTRITION STUDY

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	2,928	2,613	2,433	2,331	2,252	2,167	2,099	2,002	1,937	1,876	1,824	1,769	1,713	1,659	1,587	1,513	1,377	1,377	17	2,928	47.03
1981	0	1,780	1,537	1,458	1,372	1,308	1,264	1,203	1,162	1,124	1,088	1,059	1,024	986	939	894	808	2,321	16	4,708	49.30
1982	0	0	1,110	984	926	873	832	787	769	734	704	680	648	624	602	561	504	2,985	15	5,818	51.31
1983	0	0	0	1,099	972	908	853	810	775	743	717	693	675	651	620	588	537	3,696	14	6,917	53.43
1984	0	0	0	0	1,377	1,248	1,183	1,098	1,051	988	955	915	882	837	803	755	686	4,575	13	8,294	55.16
1985	0	0	0	0	0	1,741	1,573	1,454	1,380	1,319	1,255	1,202	1,170	1,111	1,052	994	911	5,703	12	10,035	56.83
1986	0	0	0	0	0	0	1,841	1,587	1,491	1,374	1,297	1,233	1,191	1,139	1,074	1,024	938	6,917	11	11,876	58.24
1987	0	0	0	0	0	0	0	1,865	1,665	1,542	1,465	1,400	1,333	1,254	1,178	1,092	982	8,214	10	13,741	59.78
1988	0	0	0	0	0	0	0	0	1,998	1,781	1,650	1,554	1,478	1,388	1,302	1,210	1,078	9,695	9	15,739	61.60
1989	0	0	0	0	0	0	0	0	0	2,164	1,893	1,730	1,640	1,538	1,443	1,339	1,191	11,418	8	17,903	63.78
1990	0	0	0	0	0	0	0	0	0	0	2,034	1,772	1,644	1,511	1,402	1,305	1,140	13,197	7	19,937	66.19
1991	0	0	0	0	0	0	0	0	0	0	0	1,827	1,609	1,470	1,342	1,233	1,087	15,025	6	21,764	69.04
1992	0	0	0	0	0	0	0	0	0	0	0	0	1,967	1,711	1,553	1,412	1,240	17,160	5	23,731	72.31
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	2,318	2,002	1,775	1,467	19,672	4	26,049	75.52
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,388	2,016	1,684	22,901	3	28,437	80.53
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,704	2,112	27,075	2	31,141	86.94
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,617	33,758	1	33,758	100.00



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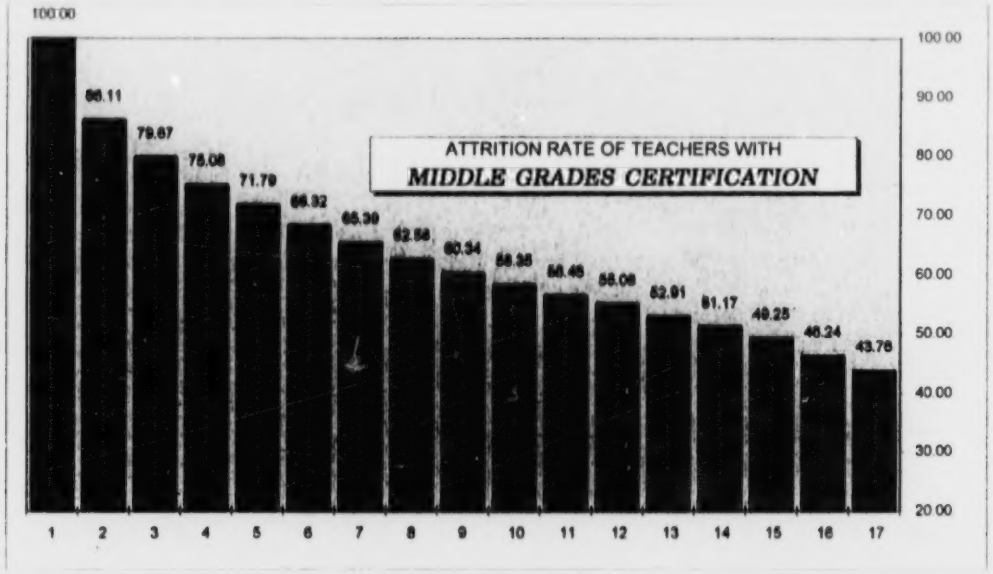
TEACHER ATTRITION STUDY

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	1,908	1,724	1,614	1,545	1,502	1,433	1,383	1,306	1,252	1,203	1,157	1,110	1,072	1,030	984	924	835	835	17	1,908	43.76
1981	0	1,267	1,122	1,058	1,002	954	914	862	823	785	753	729	702	675	638	605	544	1,468	16	3,175	46.24
1982	0	0	876	787	748	711	673	637	619	588	562	543	515	492	469	445	406	1,995	15	4,051	49.25
1983	0	0	0	872	794	740	697	660	624	592	570	548	534	513	486	452	406	2,519	14	4,923	51.17
1984	0	0	0	0	1,057	967	920	847	818	760	733	700	674	639	607	558	496	3,164	13	5,980	52.91
1985	0	0	0	0	0	1,228	1,121	1,034	973	923	858	816	789	761	722	681	622	3,970	12	7,208	55.06
1986	0	0	0	0	0	0	1,313	1,128	1,039	974	914	866	830	779	729	680	609	4,811	11	8,521	56.46
1987	0	0	0	0	0	0	0	1,238	1,100	1,011	958	906	854	801	754	689	620	5,694	10	9,759	58.35
1988	0	0	0	0	0	0	0	0	1,141	995	927	862	817	762	709	653	577	6,577	9	10,900	60.34
1989	0	0	0	0	0	0	0	0	0	1,148	969	875	810	752	708	658	578	7,540	8	12,048	62.58
1990	0	0	0	0	0	0	0	0	0	0	909	772	718	655	603	560	469	8,472	7	12,957	65.39
1991	0	0	0	0	0	0	0	0	0	0	0	834	699	635	572	508	446	9,422	6	13,791	68.32
1992	0	0	0	0	0	0	0	0	0	0	0	0	893	741	667	604	511	10,541	5	14,684	71.79
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	1,029	832	729	587	11,797	4	15,713	75.08
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,092	853	674	13,389	3	16,805	79.67
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,068	786	15,390	2	17,873	86.11
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	924	18,797	1	18,797	100.00



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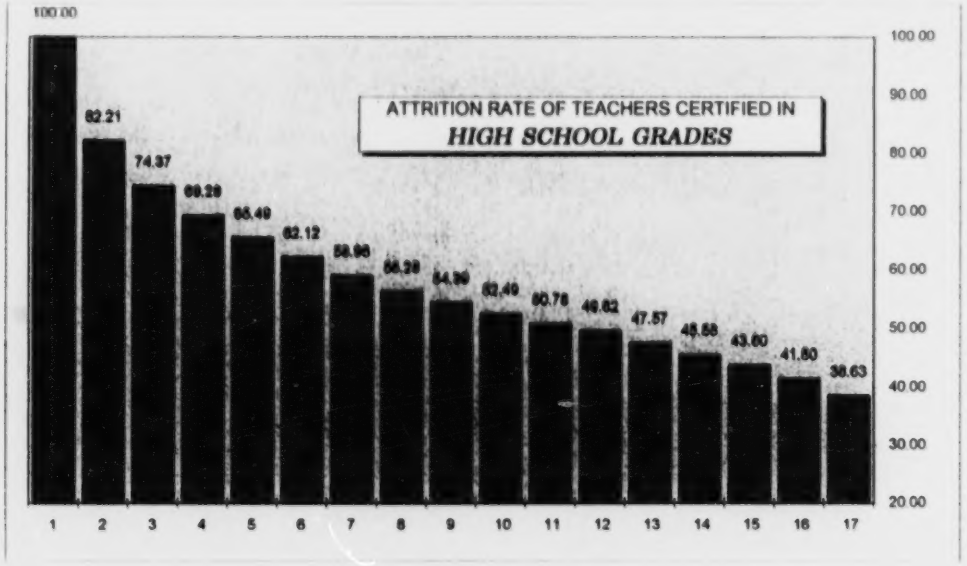
TEACHER ATTRITION STUDY

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	3,042	2,656	2,450	2,316	2,222	2,105	2,024	1,907	1,835	1,754	1,687	1,623	1,552	1,486	1,409	1,313	1,175	1,175	17	3,042	38.63
1981	0	1,920	1,639	1,520	1,429	1,346	1,283	1,215	1,150	1,109	1,066	1,025	977	934	875	827	746	2,059	16	4,962	41.50
1982	0	0	1,353	1,182	1,070	1,009	951	887	852	813	773	739	701	671	632	595	530	2,766	15	6,315	43.80
1983	0	0	0	1,320	1,139	1,041	968	902	855	815	782	752	718	677	634	589	524	3,480	14	7,635	45.58
1984	0	0	0	0	1,632	1,446	1,333	1,248	1,182	1,107	1,048	994	949	893	855	791	701	4,408	13	9,267	47.57
1985	0	0	0	0	0	1,788	1,544	1,393	1,306	1,228	1,157	1,091	1,044	983	928	886	790	5,486	12	11,055	49.62
1986	0	0	0	0	0	0	2,071	1,699	1,536	1,411	1,309	1,238	1,179	1,101	1,029	952	834	6,665	11	13,126	50.78
1987	0	0	0	0	0	0	0	2,362	2,036	1,840	1,708	1,588	1,502	1,414	1,311	1,203	1,080	8,130	10	15,488	52.49
1988	0	0	0	0	0	0	0	0	2,406	1,992	1,810	1,668	1,573	1,459	1,337	1,234	1,099	9,732	9	17,894	54.39
1989	0	0	0	0	0	0	0	0	0	2,576	2,099	1,872	1,709	1,569	1,465	1,345	1,184	11,520	8	20,470	56.28
1990	0	0	0	0	0	0	0	0	0	0	2,324	1,914	1,718	1,543	1,408	1,301	1,120	13,440	7	22,794	58.96
1991	0	0	0	0	0	0	0	0	0	0	0	1,932	1,568	1,406	1,268	1,149	1,002	15,361	6	24,726	62.12
1992	0	0	0	0	0	0	0	0	0	0	0	0	1,904	1,534	1,333	1,179	1,013	17,440	5	26,630	65.49
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	2,358	1,865	1,601	1,324	20,086	4	28,988	69.29
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,555	1,959	1,537	23,460	3	31,543	74.37
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,674	1,877	28,129	2	34,217	82.21
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,341	36,558	1	36,558	100.00



HIGH SCHOOL TEACHERS

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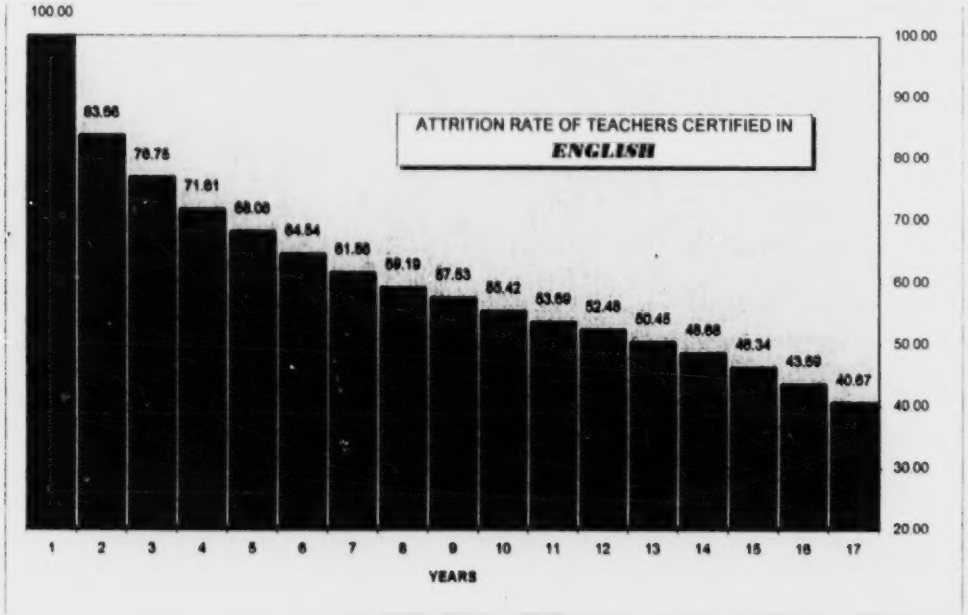
Prepared by STAT. RESEARCH AND DATA CTR

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	1,694	1,501	1,395	1,330	1,288	1,224	1,177	1,112	1,074	1,033	996	959	915	881	829	775	689	689	17	1,694	40.67
1981	-	1,041	909	856	811	775	735	689	655	631	600	579	556	531	495	470	420	1,195	16	2,735	43.69
1982	-	-	737	639	593	568	543	510	498	467	446	424	398	376	363	344	310	1,609	15	3,472	46.34
1983	-	-	-	684	604	555	512	480	455	435	423	411	400	382	359	332	303	2,023	14	4,158	48.68
1984	-	-	-	-	843	760	717	659	632	590	568	541	518	486	464	427	381	2,522	13	4,999	50.45
1985	-	-	-	-	-	939	833	773	721	677	626	592	566	547	515	489	439	3,116	12	5,938	52.48
1986	-	-	-	-	-	-	1,017	883	792	734	681	641	618	575	534	490	426	3,734	11	6,955	53.69
1987	-	-	-	-	-	-	-	1,056	913	823	775	731	692	649	606	549	492	4,440	10	8,011	55.42
1988	-	-	-	-	-	-	-	-	1,000	831	759	697	656	612	567	531	474	5,184	9	9,011	57.53
1989	-	-	-	-	-	-	-	-	-	958	773	690	631	571	537	486	425	5,901	8	9,969	59.19
1990	-	-	-	-	-	-	-	-	-	-	772	626	575	508	454	405	333	6,612	7	10,741	61.56
1991	-	-	-	-	-	-	-	-	-	-	-	662	534	472	421	378	333	7,360	6	11,403	64.54
1992	-	-	-	-	-	-	-	-	-	-	-	-	688	553	489	425	363	8,229	5	12,091	68.06
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	785	621	542	429	9,221	4	12,876	71.61
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	870	655	519	10,550	3	13,746	76.75
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	869	612	12,227	2	14,615	83.66
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	799	15,414	1	15,414	100.00

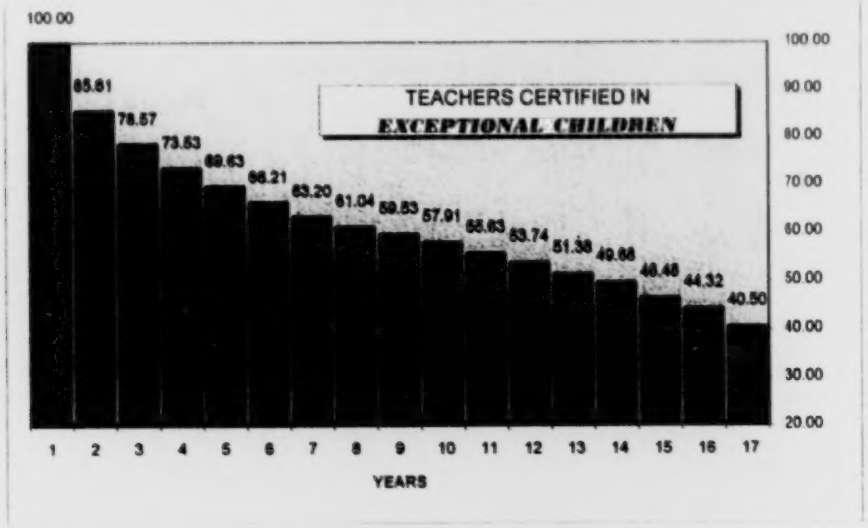


ENGLISH TEACHERS

Prepared by STAT. RESEARCH AND DATA CTR.

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	2,153	1,918	1,768	1,686	1,603	1,543	1,491	1,407	1,360	1,303	1,254	1,224	1,170	1,131	1,049	979	872	872	17	2,153	40.50
1981		1,376	1,239	1,167	1,095	1,050	1,013	964	934	901	862	827	778	745	695	651	585	1,564	16	3,529	44.32
1982			996	892	838	772	735	675	650	628	600	566	548	528	506	467	403	2,103	15	4,525	46.48
1983				934	846	794	740	696	674	653	629	608	588	551	507	471	419	2,712	14	5,459	49.68
1984					983	894	834	773	740	687	639	599	571	540	516	498	418	3,310	13	6,442	51.38
1985						1,070	976	883	854	802	748	713	690	631	599	575	502	4,037	12	7,512	53.74
1986							937	818	746	670	635	611	587	571	540	500	429	4,700	11	8,449	55.63
1987								960	871	809	750	713	664	624	592	541	491	5,449	10	9,409	57.91
1988									1,068	934	848	768	713	663	611	555	485	6,237	9	10,477	59.53
1989										1,426	1,224	1,113	1,029	941	859	771	660	7,265	8	11,903	61.04
1990											1,166	955	868	788	708	642	557	8,260	7	13,069	63.20
1991												896	767	693	620	543	467	9,246	6	13,985	66.21
1992													1,074	892	798	708	593	10,472	5	15,039	69.63
1993														1,099	853	728	614	11,867	4	16,138	73.53
1994															1,136	885	685	13,572	3	17,274	78.57
1995																1,083	751	15,715	2	18,357	85.61
1996																	1,030	19,387	1	19,387	100.00



EXCEPTIONAL CHILDREN TEACHERS

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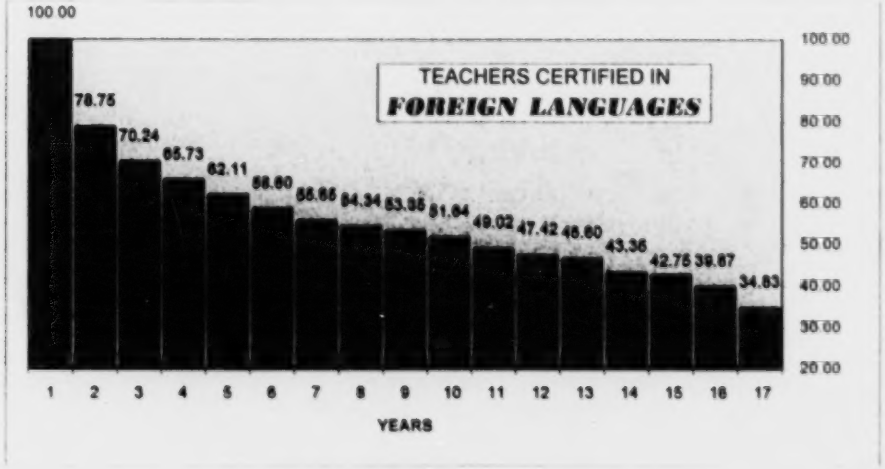
Prepared by STAT RESEARCH AND DATA CTR

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996				PERCENT SURVIVING
1980	178	150	139	132	127	121	114	108	105	102	98	93	90	85	79	73	62	62	17	178	34.83
1981	0	128	104	95	87	80	75	72	69	69	64	62	59	58	54	53	49	122	16	306	39.87
1982	0	0	94	81	77	69	68	59	58	57	57	55	51	47	45	42	39	171	15	400	42.75
1983	0	0	0	82	69	62	55	50	47	46	45	42	42	38	36	33	28	209	14	482	43.36
1984	0	0	0	0	121	104	96	91	86	82	80	75	74	71	66	60	55	281	13	603	46.60
1985	0	0	0	0	0	152	126	114	109	99	94	92	90	85	78	73	63	358	12	755	47.42
1986	0	0	0	0	0	0	161	126	119	111	105	104	97	91	83	73	61	449	11	916	49.02
1987	0	0	0	0	0	0	0	151	128	116	109	100	96	89	82	74	66	551	10	1,067	51.64
1988	0	0	0	0	0	0	0	0	200	168	154	144	133	121	111	102	87	676	9	1,267	53.35
1989	0	0	0	0	0	0	0	0	0	345	297	263	240	222	205	179	157	876	8	1,612	54.34
1990	0	0	0	0	0	0	0	0	0	0	343	275	244	217	197	176	150	1,088	7	1,955	55.65
1991	0	0	0	0	0	0	0	0	0	0	0	260	202	176	152	136	118	1,298	6	2,215	58.60
1992	0	0	0	0	0	0	0	0	0	0	0	0	208	161	137	122	102	1,505	5	2,423	62.11
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	259	184	152	125	1,763	4	2,682	65.73
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	209	140	2,084	3	2,967	70.24
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	270	165	2,549	2	3,237	78.75
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249	3,486	1	3,486	100.00

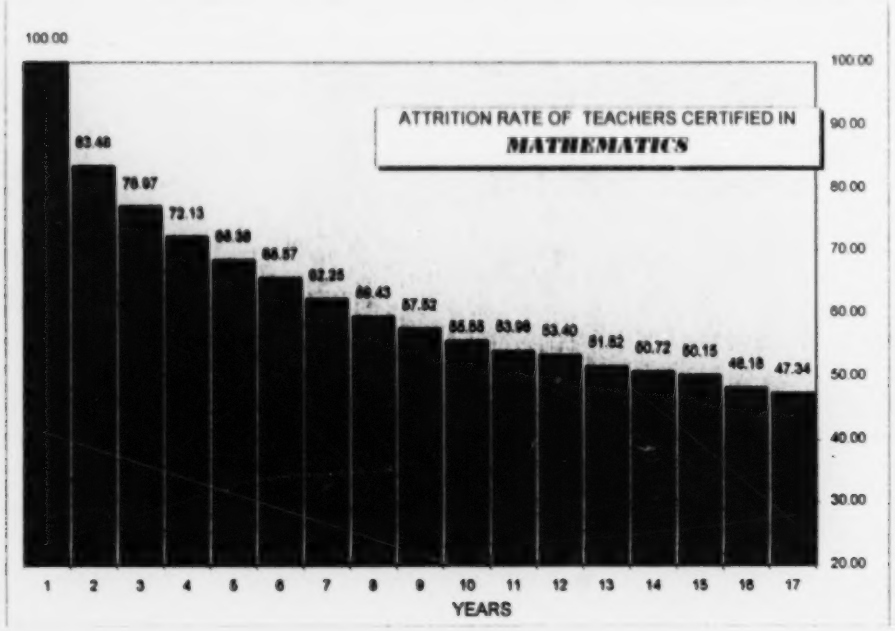


FOREIGN LANGUAGE TEACHERS

Prepared by STAT. RESEARCH AND DATA CTR

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	564	510	493	475	461	445	428	406	391	374	362	341	329	316	299	286	267	267	17	564	47 34
1981	0	453	407	384	372	351	338	322	309	295	281	273	265	249	237	226	204	490	16	1017	48 18
1982	0	0	323	301	287	277	254	239	228	216	202	200	186	181	169	160	147	672	15	1340	50 15
1983	0	0	0	324	288	268	250	230	214	206	198	189	181	177	165	151	131	844	14	1664	50 72
1984	0	0	0	0	469	419	394	356	345	316	299	282	269	249	242	226	201	1099	13	2133	51 52
1985	0	0	0	0	0	515	449	415	393	369	352	322	313	297	278	261	236	1414	12	2648	53 40
1986	0	0	0	0	0	0	609	528	487	434	404	381	363	342	321	293	257	1758	11	3257	53 98
1987	0	0	0	0	0	0	0	662	578	530	499	466	437	412	380	354	321	2177	10	3919	55 55
1988	0	0	0	0	0	0	0	0	549	482	432	400	381	348	308	284	252	2570	9	4468	57 52
1989	0	0	0	0	0	0	0	0	0	487	391	347	308	279	287	250	215	2945	8	4955	59 43
1990	0	0	0	0	0	0	0	0	0	0	425	345	313	279	259	249	211	3,349	7	5380	62 25
1991	0	0	0	0	0	0	0	0	0	0	0	397	307	278	254	225	202	3,788	6	5777	65 57
1992	0	0	0	0	0	0	0	0	0	0	0	0	517	420	387	339	280	4,304	5	6294	68 38
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	616	490	435	348	4,984	4	6910	72 13
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	577	439	333	5,763	3	7487	76 97
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	606	422	6,756	2	8093	83 48
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	512	8,605	1	8,605	100 00

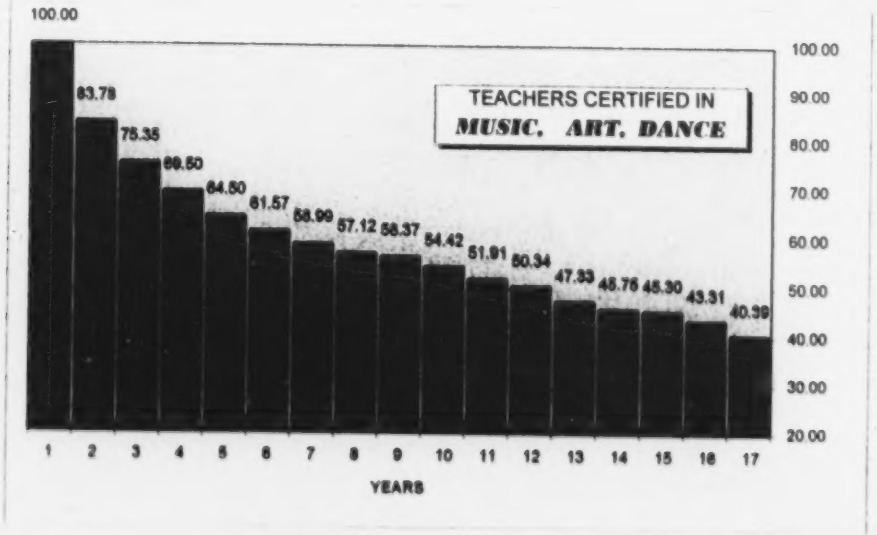


MATHEMATICS TEACHERS

Prepared by STAT. RESEARCH AND DATA CTR.

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	510	457	414	382	364	348	337	322	311	294	281	268	257	250	239	221	206	206	17	510	40.39
1981	0	319	271	253	237	222	213	211	202	196	190	186	181	172	162	153	138	359	16	829	43.31
1982	0	0	224	186	167	152	142	132	123	119	115	112	106	102	97	93	85	477	15	1,053	45.30
1983	0	0	0	254	210	191	169	150	144	139	135	125	121	112	108	103	93	598	14	1,307	45.75
1984	0	0	0	0	248	224	203	191	180	173	162	154	147	140	135	127	107	736	13	1,555	47.33
1985	0	0	0	0	0	231	199	181	173	162	155	147	140	134	129	123	113	899	12	1,786	50.34
1986	0	0	0	0	0	0	256	209	194	179	169	162	154	147	141	135	117	1,060	11	2,042	51.91
1987	0	0	0	0	0	0	0	286	259	238	227	202	195	187	177	164	146	1,267	10	2,328	54.42
1988	0	0	0	0	0	0	0	0	388	339	305	278	258	251	233	212	198	1,531	9	2,716	56.37
1989	0	0	0	0	0	0	0	0	0	542	441	393	352	325	304	285	253	1,861	8	3,258	57.12
1990	0	0	0	0	0	0	0	0	0	0	488	397	350	315	289	262	220	2,198	7	3,726	58.99
1991	0	0	0	0	0	0	0	0	0	0	0	328	265	230	201	183	157	2,496	6	4,054	61.57
1992	0	0	0	0	0	0	0	0	0	0	0	0	281	237	203	177	150	2,796	5	4,335	64.50
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	341	279	248	217	3,250	4	4,676	69.50
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	363	282	227	3,797	3	5,039	75.35
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	363	271	4,526	2	5,402	83.78
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	357	5,759	1	5,759	100.00

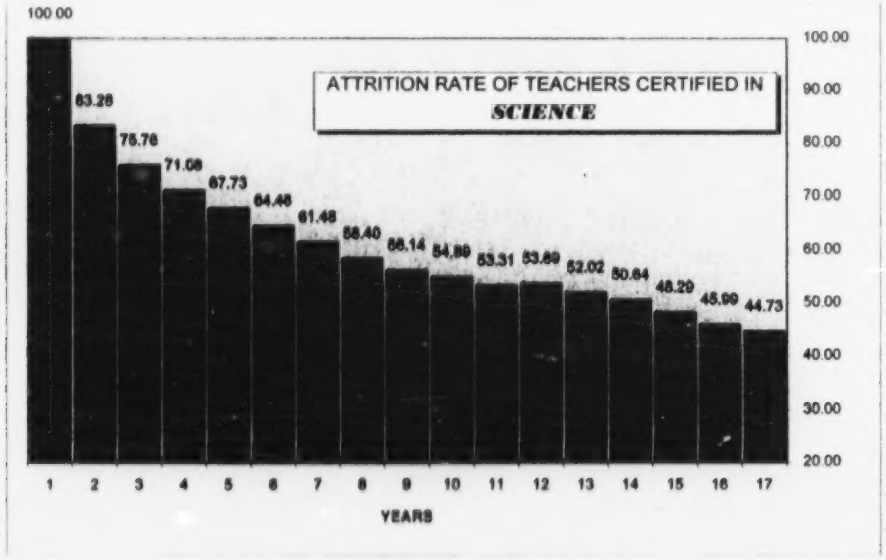


MUSIC, ART, DANCE TEACHERS

Prepared by STAT. RESEARCH AND DATA CTR.

TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	749	672	632	611	597	572	556	530	506	485	463	450	435	413	398	374	335	335	17	749	44.73
1981	0	499	435	412	395	373	360	338	314	301	296	288	270	258	237	220	200	574	16	1249	45.99
1982	0	0	361	333	316	296	282	263	251	239	230	225	213	203	184	176	159	777	15	1609	48.29
1983	0	0	0	409	380	353	338	322	305	287	281	276	264	257	242	221	196	1022	14	2018	50.64
1984	0	0	0	0	554	492	464	435	418	388	359	346	333	311	298	275	240	1338	13	2572	52.02
1985	0	0	0	0	0	643	569	510	478	445	417	390	383	351	327	313	286	1726	12	3215	53.69
1986	0	0	0	0	0	0	728	597	537	498	467	441	418	377	353	323	272	2102	11	3943	53.31
1987	0	0	0	0	0	0	0	812	701	634	594	551	522	483	439	409	379	2610	10	4755	54.89
1988	0	0	0	0	0	0	0	0	864	552	507	459	429	388	364	323	283	3042	9	5419	56.14
1989	0	0	0	0	0	0	0	0	0	590	460	409	381	350	334	312	277	3509	8	6009	58.40
1990	0	0	0	0	0	0	0	0	0	0	522	424	392	349	318	299	251	4,015	7	6531	61.48
1991	0	0	0	0	0	0	0	0	0	0	0	447	347	312	285	251	211	4,498	6	6978	64.46
1992	0	0	0	0	0	0	0	0	0	0	0	0	499	395	337	308	261	5,064	5	7477	67.73
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	618	484	418	331	5,754	4	8095	71.08
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	594	463	350	6,583	3	8689	75.76
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	625	453	7,757	2	9314	83.28
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	567	10,642	1	10,642	100.00



SCIENCE TEACHERS

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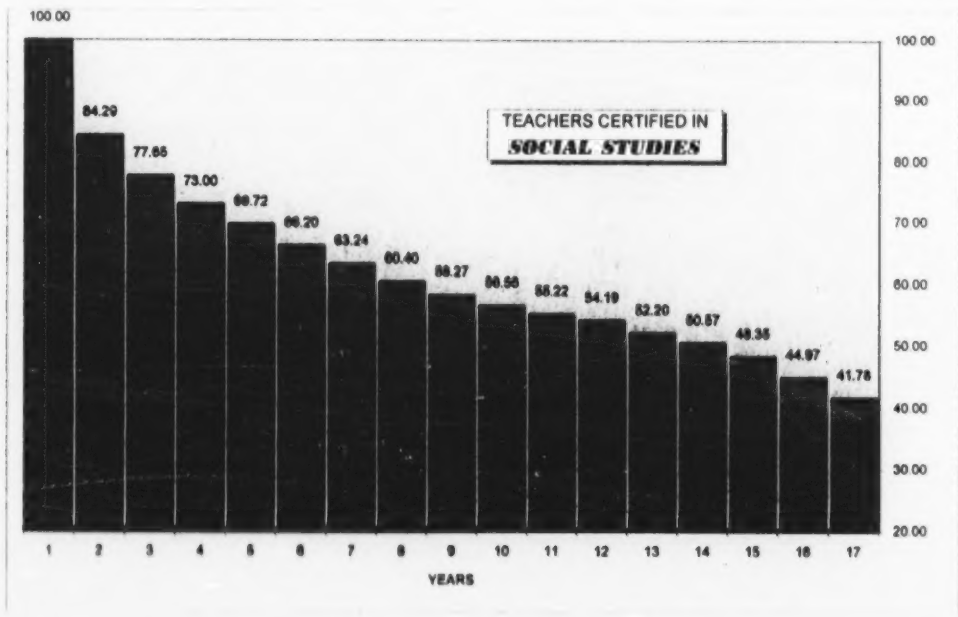
TEACHER ATTRITION STUDY

STUB	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	C1	C2	C3	PERCENT SURVIVING
1980	1,424	1,273	1,204	1,149	1,109	1,059	1,024	959	924	887	855	822	791	759	718	673	595	595	17	1424	41.78
1981		942	826	790	745	700	679	640	610	580	565	546	522	505	477	453	391	1064	16	2366	44.97
1982			598	524	503	481	456	430	411	393	372	363	341	327	313	292	262	1433	15	2964	48.35
1983				546	479	443	421	401	378	358	345	336	327	306	288	272	247	1775	14	3510	50.57
1984					747	674	646	599	582	547	526	497	478	446	419	380	341	2222	13	4257	52.20
1985						818	744	679	629	606	564	537	515	497	474	452	411	2750	12	5075	54.19
1986							1,017	858	784	734	677	633	608	575	528	492	445	3364	11	6092	55.22
1987								963	835	769	712	671	630	587	546	491	436	3990	10	7055	56.56
1988									990	843	780	720	677	639	594	545	482	4688	9	8045	58.27
1989										951	782	691	634	585	549	514	449	5434	8	8996	60.40
1990											795	659	609	553	511	469	395	6,192	7	9791	63.24
1991												694	586	527	477	426	366	6,941	6	10485	66.20
1992													663	541	465	426	371	7,772	5	11148	69.72
1993														754	597	503	409	8,689	4	11902	73.00
1994															925	712	567	9,960	3	12827	77.65
1995																910	646	11,579	2	13737	84.29
1996																	728	14,465	1	14,465	100.00



SOCIAL STUDIES TEACHERS